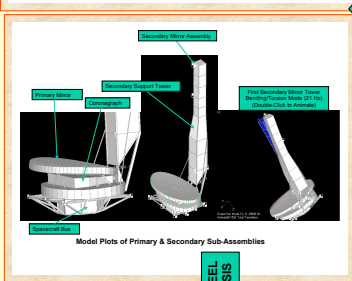
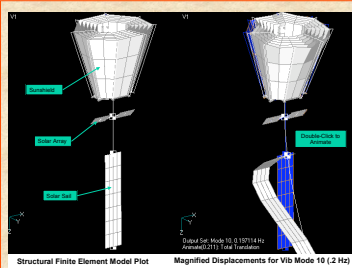
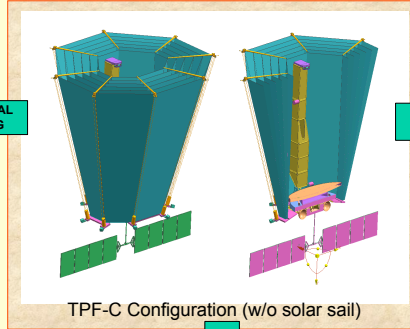


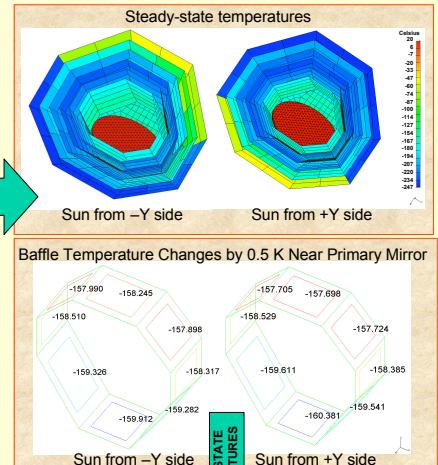
TPF Coronagraph Integrated Modeling Results



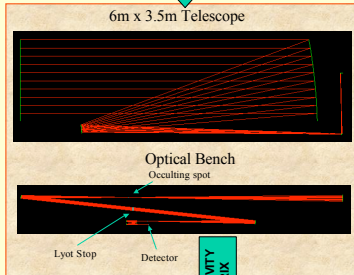
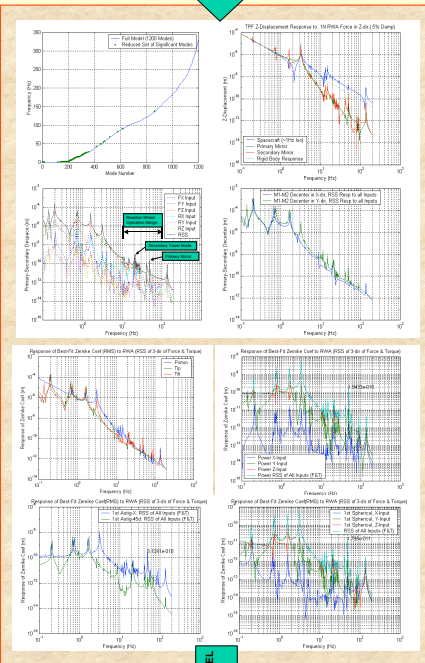
STRUCTURAL MODELING



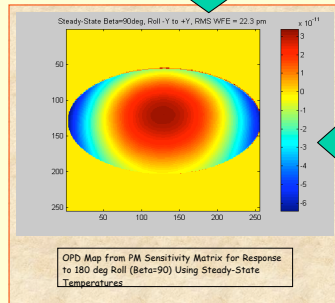
THERMAL MODELING



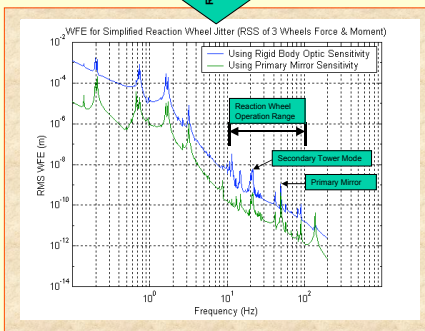
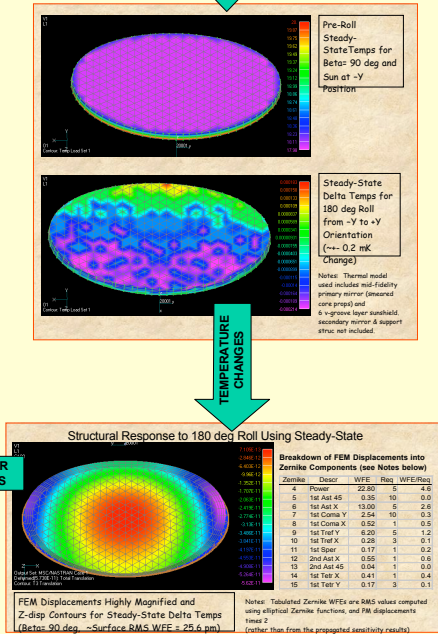
STEADY-STATE TEMPERATURES



SENSITIVITY MATRIX



PRIMARY MIRROR DISPLACEMENTS



Simplified RW Jitter Analysis Results:

Two Types of SC Telescope Isolation considered: 'No Passive & Active' and 'Rigid Body Optic Response (Model v03)'

Displacement	Reaction Wheel Jitter (nm)	Reaction Wheel Jitter (nm)	Reaction Wheel Jitter (nm)
1st Ast X	1.0	0.21	0.006
1st Ast Y	0.8	0.20	0.006
1st Tril X	2.8	0.04	0.007

Primary Mirror Distortion Response (micrometers, Model v03)

Zernike	Displ	Power	1st Ast X	1st Ast Y	1st Tril X	1st Tril Y	1st Sph	2nd Ast X	2nd Ast Y	1st Tril X	1st Tril Y
4	Power	47	0.50	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5	1st Ast X	313	3.91	1	0.8	0.8	0.8	0.8	0.8	0.8	0.8
6	1st Coma X	6	0.08	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
7	1st Coma Y	11	0.39	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8	1st Tril X	10	0.13	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1st Sph	18	0.23	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10	2nd Ast X	20	0.31	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11	2nd Ast Y	5	0.08	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
12	1st Tril X	21	0.26	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3
13	1st Tril Y	5	0.08	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Active isolation results are estimated using mode factors based on LAMC6000 results for reduced systems. Elliptical Zernikes were used for the fitting. WFEs are RMS values.

- Predicted wavefront errors due to environmental disturbances calculated using thermal, structural and optical models of a simplified space-based telescope.
- Steady-state temperatures calculated for 90 degree beta angle solar illumination (L2 orbit) with sun on opposite sides of telescope.
- Observational stability due to reaction wheel vibration evaluated using simplified source characterization, with dynamic frequency response analysis.
- Temperature change is greater than for transient case due to long time constant (~6 days) of primary mirror.
- Change in temperature field used in corresponding structural model to determine deformation of primary mirror.
- Low order Zernikes fit to primary mirror distortions for each type of disturbance and compared with requirements budget.
- Wavefront errors calculated using sensitivity matrices derived from optical model of system.
- Structural responses, including rigid body optics and primary mirror distortion, propagated through system using wavefront sensitivity matrices.



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